

## ABSTRACT

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The present invention is directed at a tire design, which allows for proper operational characteristics in all operating conditions, and is not dependent on pneumatic pressurization. The tire is mounted in a wheel rim, and comprises an integral homogeneous toroidal body having a pair of spaced-apart radially extending sidewalls and a cross member. Each sidewall has a first and a second end and an internal face and an external face, with the second end of each of the sidewalls integrally merging into the cross member. A set of rim-engaging surfaces at the first end of each of the sidewalls allows effective mounting to conventional tire rims. An annular chamber is defined by the internal faces of the sidewalls and an internal top wall on the cross member opposite the at least one road engaging surface. The set of rim-engaging surfaces includes a lobe-like portion at the first end of each of the sidewalls, the respective lobe-like projections may be separable when the tire is not mounted on the rim, but being compressed into engagement when the tire is mounted in the rim, thereby closing the annular chamber, or integral with one another to form the enclosed chamber.

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